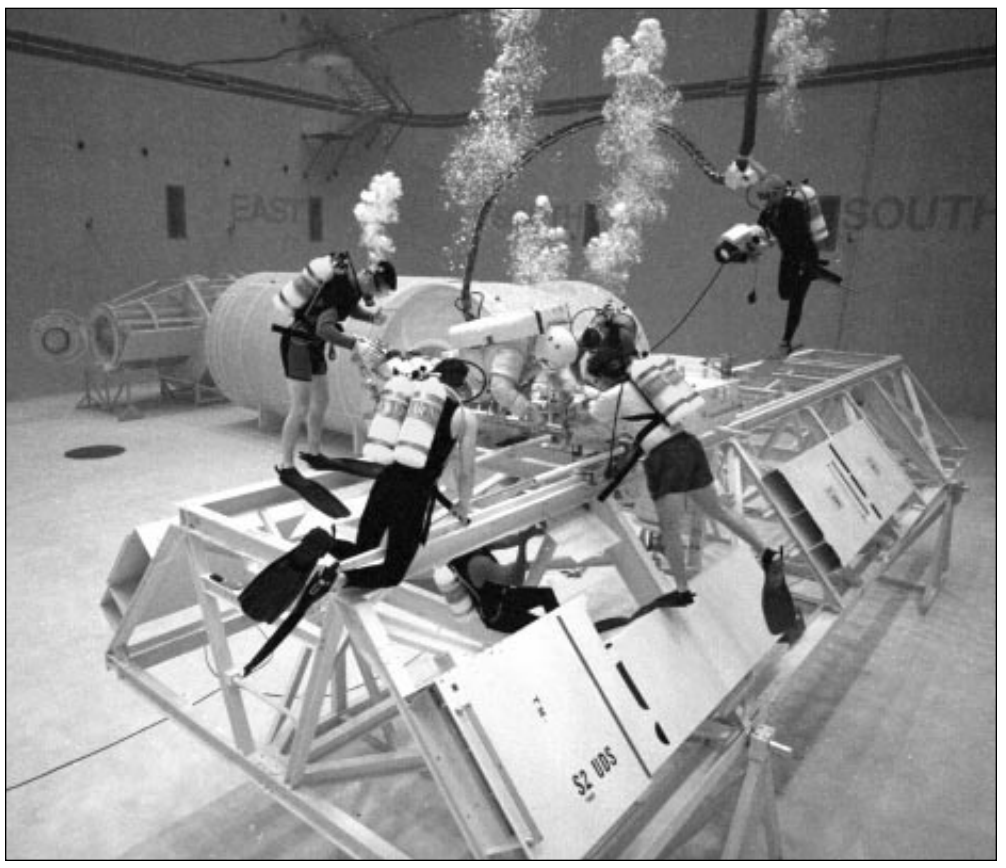

Industry Inspection

JSC opens its doors to business leaders for up-close look

Wednesday and Thursday, corporate and technical representatives from businesses that aren't usually associated with aerospace will be at JSC to gain a better understanding of the technologies involved in accomplishing human space flights and the possibilities for applying them to their tasks.

The NASA JSC Inspection will offer more than 100 exhibits and mini-tours of facilities around JSC. Business leaders will have the opportunity to examine technology in engineering and science operations, attend overview sessions about NASA's programs and talk directly with the scientists, engineers and technicians who are making them happen.

"This event will be an excellent opportunity to show our technical advances and allow our engineers, scientists and managers to share our activities and accomplishments," said JSC Director George Abbey. "During their time here, the leaders will discover that much of the work we do - ranging from spacecraft design to on-orbit operations, to biomedical research - has potential applications in the commercial sector."

Representatives from chemical, petroleum, energy, transportation, agriculture, manufacturing, medical and engineering fields will be welcomed with a brief orientation in Bldg. 9. From there, these business leaders will be free to explore the center and its variety of science, technical and engineering capabilities.

"We've really worked hard to come up with an approach that would give attendees a great deal of flexibility in planning their own time at JSC based on their individual interests," said Bob Holkan, chairman of the planning committee. "We have an outstanding program that allows our guests to choose from exhibits and tours from across the center. They'll not only have a chance to discover possible benefits and partnerships, but they'll learn quite a bit about our program, as well."

An overview of JSC's major programs and technology developments in Bldg. 9 North is of prime interest to managers from companies like Honeywell in California and chemical manufacturer M.W. Kellogg in Houston. Business representatives will learn about a meteorite that may harbor evidence of primitive life on Mars, get a broad look at JSC's Technology Transfer and Commercialization activities and learn how to do business with NASA. There also will be mock-up tours and demonstrations of robotic and virtual reality equipment under development.

Astronaut and flight control team training will be examined in Bldg. 5, including a tour of the space shuttle and space station training facilities and demonstrations of a robotics prototype trainer and virtual environment training techniques.

Senior vice presidents of companies like Operational Technologies, an environmental service company in San Antonio, and Monsanto of Alvin will tour Bldg. 7 and its advanced life support equipment. These top managers will have a chance to learn about air and water purification along with the Electronic Cuff Checklist for space walkers and advances in plant growth and artificial soils development.

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>
> —JSC Director George Abbey.

Manufacturing technology has attracted CEOs and directors from companies across the country like MAC Equipment in Missouri. These business leaders will learn about rapid prototyping and manufacturing systems in Bldg. 9 South, along with a miniature manufacturing laboratory and fracture control analysis tools.

Structures and thermal technologies that use radiometers to measure heat distribution inside a furnace will be demonstrated in Bldg. 13, and visitors will have an opportunity to do some hands-on tests with systems designed to isolate experiments from vibration.

John Saiz, a thermal control system designer in Engineering's Structures and Mechanics Division, will explain the benefits of a new Thermal Synthesizer System, developed by JSC and Lockheed. The system is designed to help engineers design control systems for space flight hardware, but could be applied to any process or system where temperatures need to be controlled. A version of the software that could be used on personal computers, and therefore potentially useful in the computer and petrochemical industries, should be available in December, he said.

Communications and microwave technologies may be explored in Bldg. 14. Demonstrations will show how NASA measures particle flow velocities, identifies fluid flows, tests antennas and compresses video and data streams.

Additional engineering initiatives have attracted the attention of top managers from companies like Shell Oil, Baker-Hughes and Exxon. These initiatives, such as computer-aided human factors analysis, automatic cable analyzers, energy systems testing and the NASA/DeBakey Heart Pump Project will be on display in Bldg. 15.

Aerospace flight simulation technology and techniques will be chronicled in Bldg. 16, where computational fluid dynamics analysis tools, trajectory and motion modeling tools, secure software development and Global Positioning System applications will be demonstrated and displayed.

Trajectory and Motion Modeling Tools such as those employed by JSC's Flight Mechanics Lab, which performs analysis, simulation and animation of general motion and trajectories for any and all phases of space flight, could be useful in many other industries, said Chris Cerimele, deputy chief Advanced Mission Design, who worked with Pete Cuthbert and Dick Ramsell in preparing the display.

With onset of smaller, more powerful computers and the development of graphical user interfaces, he said, it is easier today to go from simulation output to animation.

"The use of animation has streamlined our process and made products a lot more understandable to out own engineers, and to management and the public," Cerimele said. "In the past, data came in plots or lists of numbers. With animation and quick turnaround, you can readily visualize what is happening and then change control, guidance systems."

"I think there are applications out there other than in the aerospace industry and hopefully we'll key in on those," Cerimele said. He suggested that such technology might be useful in developing training tools that could show pilots the best way to dock in the Houston ship channel, or by lawyers recreating accidents through animation to present a clear picture to judges and juries.

Medical sciences research and development will be shared in Bldg. 37. Included in the demonstrations will be an ear plug that can measure heart rate, pulse pressure and respiration, a thermoelectric test tube chiller, a drug microencapsulation system and telemedicine equipment and techniques.

Mission operations and control systems will be explained in Bldg. 30. Visitors will get a look at the original and the new MCC , learn about electronic documentation, intelligent flight activities planning and the Information Sharing Protocol that allows NASA to efficiently disseminate data to a variety of locations.

Both the Weightless Environment Training Facility in Bldg. 29 and the Sonny Carter Training Facility's Neutral Buoyancy Laboratory will be open to visitors interested in neutral buoyancy operations. Other space environment simulations, such as thermal-vacuum chambers and optical information storage will be showcased in Bldg. 32.

Space sciences advancements in the area of earth observations and orbital debris tracking and protection will be demonstrated in Bldg. 31.

In Bldg. 49, JSC's use of vibration and acoustic testing equipment will be explored.

In addition, JSC's T-38 and Shuttle Training Aircraft will be available for inspection as well as the reduced gravity and high altitude programs and avionics upgrades on the T-38.

JSC employees may invite technical and business associates at local technical businesses who can benefit from participation in the NASA/JSC Inspection. While it is preferable to register in advance by faxing the visitor's name, company position and phone number to 280-8927, visitors may register at the event. For more information regarding the event, contact the Inspection Office at x47853. ❑

Top: JSC's new Neutral Buoyancy Facility at the Sonny Carter Training Facility will be one of the area's available for tours during NASA JSC Inspection. Above left: John Saiz, a thermal control system designer in Engineering's Structures and Mechanics Division, explains the Thermal Synthesizer System during a walk-through of Bldg. 13 by JSC Director George Abbey and Associate Director John Young. The system, developed by JSC and Lockheed to help control temperatures in flight hardware, will suggest ways that non-aerospace industries could use the software in their work. Above right: Chris Cerimele, deputy chief of Engineering's Advanced Mission Design Branch, explains Trajectory and Motion Modeling Tools developed by the Flight Mechanics Lab. The system, developed to provide quick-turnaround animations based on simulation data, could be useful to a number of other industries.

JSC Photos by Robert Markowitz